CHAPTER 1: INTRODUCTION AND PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

This *Site-wide Environmental Impact Statement for Continued Operation of Lawrence Livermore National Laboratory and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement* (LLNL SW/SPEIS) describes the purpose and need for agency action for the continued operation of LLNL and analyzes the environmental impacts of these operations. The primary purpose of continuing operation of LLNL is to provide support for the National Nuclear Security Administration's (NNSA's) nuclear weapons stockpile stewardship missions. LLNL, located about 40 miles east of San Francisco, California, is also needed to support other U.S. Department of Energy (DOE) programs and Federal agencies such as the U.S. Department of Defense, Nuclear Regulatory Commission, U.S. Environmental Protection Agency (EPA), and the newly established U.S. Department of Homeland Security. This LLNL SW/SPEIS analyzes the environmental impacts of reasonable alternatives for ongoing and foreseeable future operations, facilities, and activities at LLNL. The reasonable alternatives include the No Action Alternative, Proposed Action, and the Reduced Operation Alternative.

The major decision to be made by DOE/NNSA is to select one of the alternatives for the continued operation of the LLNL. As part of the Proposed Action, DOE/NNSA is considering: using additional materials including plutonium on the National Ignition Facility (NIF); increasing the administrative limit for plutonium in the Superblock, which includes the Plutonium Facility, the Tritium Facility, and the Hardened Engineering Test Building; conducting the Integrated Technology Project, using laser isotope separation to provide material for Stockpile Stewardship experiments, in the Plutonium Facility; increasing the material-at-risk limit for the Plutonium Facility; and increasing the Tritium Facility material-at-risk. A discussion of these issues is presented in Section 1.5, Major Decisions.

Chapter 1 provides information on the purpose and need for agency action and a history of LLNL's past *National Environmental Policy Act* (NEPA) (42 *United States Code* [U.S.C.] §4321 et seq.) activities, identifies the major decisions to be made, and provides information on the scoping comments received during the scoping period. Chapter 2 provides an overview of LLNL history, missions, operations, programs, and facilities. Chapter 3 discusses the No Action Alternative, Proposed Action, and Reduced Operation Alternative. Chapter 4 describes the existing environment. Chapter 5 identifies the environmental consequences of activities under the No Action Alternative, Proposed Action, and Reduced Operation Alternative. There are several appendices that provide further details on the information provided in Chapters 1 through 5. The remaining chapters and appendices provide additional information on the associated environmental impacts.

1.2 BACKGROUND

Pursuant to the *Atomic Energy Act* of 1954, as amended, DOE is responsible for nuclear weapons research and design as well as other energy research and development (R&D) operations. The *National Defense Authorization Act* (Public Law 103-160, §3138) directed the Secretary of

Energy to "establish a stewardship program to ensure the preservation of the core intellectual and technical competencies of the U.S. in nuclear weapons."

In 1995, the President confirmed the continuing need for three nuclear weapons laboratories, LLNL, Los Alamos National Laboratory, and Sandia National Laboratories, in a "Statement by the President" (White House 1995a) indicating "To meet the challenge of ensuring confidence in the safety and reliability of our stockpile, I have concluded that the continued vitality of all three DOE nuclear weapons laboratories will be essential." This statement emphasized the importance of the continued operation of LLNL to ensure the safety and reliability of the nuclear weapons stockpile.

The *Final Programmatic Environmental Impact Statement for Stockpile Stewardship and Management* (SSM PEIS) (DOE/EIS-0236) (DOE 1996a) was completed in September 1996, and a Record of Decision (ROD) was published in the Federal Register on December 26, 1996 (61 FR 68014). The ROD announced the decision to begin the development of the Stockpile Stewardship Program and stated "The President and Congress have directed DOE to maintain the core intellectual and technical competencies for the U.S. in nuclear weapons and to maintain the safety and reliability of the enduring nuclear weapons stockpile." Without underground nuclear testing, DOE must rely on experimental and computational capabilities, especially in weapons physics, to assess and predict the consequences of problems that may occur in an aging stockpile. The ROD further states that without capabilities offered by LLNL, such as the NIF, "DOE would lack the ability to evaluate significant weapon performance issues, which could adversely affect confidence in the Nation's nuclear deterrent."

Under Title 32 of the *National Defense Authorization Act* for fiscal year (FY) 2000 (Public Law 106-65), Congress created NNSA as a separately organized agency within DOE to focus on the management of the Nation's defense nuclear programs. One of the statutory missions of NNSA is to maintain and enhance the safety, reliability, and performance of the U.S. nuclear weapons stockpile to meet national security requirements. On March 1, 2001, NNSA officially commenced its management of DOE's nuclear weapons programs and facilities, which include LLNL.

1.3 PURPOSE AND NEED FOR AGENCY ACTION

The continued operation of LLNL is critical to NNSA's Stockpile Stewardship Program and to preventing the spread and use of nuclear weapons worldwide. LLNL maintains core competencies in activities associated with research, development, design, and surveillance of nuclear weapons, as well as the assessment and certification of their safety and reliability. In response to the end of the Cold War and changes in the world's political regimes, the emphasis on the U.S. nuclear weapons program has shifted from developing and producing new weapons designs to dismantling obsolete weapons and maintaining a smaller weapons stockpile.

1.3.1 Nuclear Posture Review

In 2001, Congress directed DoD to conduct a comprehensive nuclear posture review to lay out the direction for the U.S. nuclear forces over the next 5 to 10 years. The centerpiece of the nuclear posture review is the new triad, with flexible response capabilities. The new triad is

composed of the three elements: (1) offensive strike systems, nuclear and nonnuclear; (2) active and passive defenses; and (3) a revitalized defense infrastructure that will provide capabilities in a timely fashion to meet emerging threats.

Of particular interest to DOE and NNSA is the third element of the new triad, which reflects a broad recognition of the importance of a robust and responsive nuclear weapons infrastructure in sustaining deterrence. In this respect, the nuclear posture review notes that the flexibility to sustain the U.S. nuclear weapons stockpile depends on a robust program for stockpile stewardship and peer-review-based stockpile certification.

DOE developed several goals in its draft NNSA Strategic Plan (NNSA 2002b) to achieve its missions in support of the nuclear posture review. The nuclear weapons stewardship goal is to ensure that our nuclear weapons continue to serve their essential deterrence role by maintaining and enhancing the safety, security, and reliability of the U.S. nuclear weapons stockpile. Achieving these goals requires the continued operation of LLNL.

NNSA has developed strategic objectives to support the DOE strategic goals. The strategic objectives that support the nuclear posture review and relate to the purpose for continued operations of LLNL are listed below:

- Conduct a program of warhead evaluation, maintenance, refurbishment, and production planned in partnership with the DoD
- Develop the scientific, design, engineering, testing, and manufacturing capabilities needed for long-term stewardship of the stockpile
- Attract and retain the best laboratory workforce
- Provide state-of-the-art facilities and infrastructure supported by advanced scientific and technical tools to meet the operations and mission requirements
- Protect classified information and assets

NNSA currently certifies the stockpile through the Stockpile Stewardship Program, designed to implement DOE goals and NNSA objectives. LLNL programs and operations are integral components of DOE and NNSA strategies. In order to ensure the safety, reliability, and performance of the nuclear weapons stockpile, DOE has determined that it should: construct the NIF and the Terascale Simulation Facility; operate existing facilities such as Building 332 Plutonium Facility, Building 331 Tritium Facility, and Building 801 Contained Firing Facility; and retain skilled scientists and engineers.

1.3.2 Annual Assessment Review

LLNL participates in the formal review processes and assessments of weapons safety, security, and reliability. The seventh cycle to certify the stockpile, since the cessation of underground nuclear testing, was completed for the President in 2002. The annual assessment review is based on the technical evaluations made by the three weapons laboratories, provided through DOE to the U.S. Strategic Command and the Nuclear Weapons Council. To prepare for this process,

LLNL scientists and engineers collect, review, and integrate all available information regarding each stockpile weapons system, including physics, engineering, chemistry, and materials science data.

The annual assessment review and the formal certification of refurbished warheads require weapons experts to "depend" on an extensive range of aboveground experiments, vastly improved simulation capabilities, and the historical nuclear test database. LLNL and Los Alamos National Laboratory are also developing and beginning to apply a rigorous set of quantitative standards as the basis for formal certification actions and setting programmatic priorities.

LLNL conducts a wide range of stockpile surveillance activities to assess the condition of LLNL-designed weapons in the stockpile and to better understand the effects of aging on weapons. These surveillance activities include evaluating the pits in the primaries of nuclear weapons. LLNL is the design laboratory for four weapons systems in the stockpile: the W87 and W62 intercontinental ballistic missile warheads, the B83 bomb, and the W84 cruise missile.

Pit—The central core of a nuclear weapon containing plutonium-239 or highly enriched uranium that undergoes fission when compressed by high explosives.
Primary—The pit and high explosives component of a nuclear weapon.

1.3.3 Other Lawrence Livermore National Laboratory Program Activities

Countering the proliferation and use of weapons of mass destruction is another national security program that uses LLNL's R&D expertise. On December 10, 2002, LLNL introduced a new organization to support the U.S. Department of Homeland Security (LLNL 2002a). A detailed description of other programs and operations is presented in Appendix A of this LLNL SW/SPEIS.

LLNL is organized into a number of other programs to support DOE- and NNSA-assigned missions. These programs include nuclear materials stewardship, energy security and long-term energy needs, environmental assessment and management, advancing bioscience, and breakthroughs in fundamental sciences and applied technology. Additionally, LLNL supports other government organizations and science and industry through the transfer of technology.

1.4 RELATED *NATIONAL ENVIRONMENTAL POLICY ACT* DOCUMENTS

NEPA establishes environmental policy, sets goals, and provides a means for implementing the policy. NEPA contains provisions to ensure that Federal agencies adhere to the letter and spirit of the Act. The key provision requires preparation of an environmental impact statement (EIS) on "major Federal actions significantly affecting the quality of the human environment" (40 *Code of Federal Regulations* [CFR] §1502.3). NEPA ensures that environmental information is available to public officials and citizens before decisions are made and actions are taken (40 CFR §1500.1[b]). This LLNL SW/SPEIS analyzes a range of alternatives that would allow LLNL to provide support for NNSA and other DOE missions.

DOE has a policy to prepare site-wide environmental impact statements (SWEIS) for certain large, multiple-facility sites such as LLNL (10 CFR §§1021.330). In 1982, DOE prepared a SWEIS for LLNL and Sandia National Laboratories, Livermore, now called Sandia National

Laboratories, California (SNL/CA) (DOE 1982a). That document provided environmental information for DOE's decision to "operate the Livermore Sites at the present level of effort which is consistent with national security and defense policy" (47 FR 44836). The ROD, based on the 1982 SWEIS, concluded that work at the two laboratories was essential to the national need for R&D in the nuclear weapons program and other basic energy research. DOE committed to operate the facilities in a manner to reduce further environmental, health, and safety impacts to the extent practical.

Ten years later, in August 1992, DOE released the *Final Environmental Impact Statement and Environmental Impact Report for Continued Operations of Lawrence Livermore National Laboratory and Sandia National Laboratories, Livermore* (1992 LLNL EIS/EIR) (LLNL 1992a). A ROD was issued in January 1993. The 1992 LLNL EIS/EIR continues to serve as the most comprehensive NEPA document for LLNL operations.

The impacts associated with construction and operation of the NIF were evaluated in the Stockpile Stewardship and Management (SSM) SSM PEIS (DOE/EIS-0236) (DOE 1996a). A project-specific analysis of the NIF was included in the SSM PEIS as an appendix. The SSM PEIS ROD (61 FR 68014), published in the *Federal Register* on December 26, 1996, documented the decision to construct and operate the NIF at LLNL.

In 1998, DOE issued the *Supplement Analysis for Use of Hazardous Materials in NIF Experiments* (DOE/EIS-SA0236-SA2) (DOE 1998c), which addressed the use of plutonium and other hazardous materials. The supplement analysis provided the basis for approval of the use of depleted uranium on the NIF and indicated that there was no new information to warrant the preparation of a supplemental SSM PEIS.

In March 1999, DOE released a supplement analysis that considered whether the 1992 LLNL EIS/EIR should be supplemented, a new EIS should be prepared, or no further NEPA documentation should be required. The supplement analysis concluded that the 1992 LLNL EIS/EIR remained adequate and that no supplemental or new EIS was required at that time (DOE 1999a).

As indicated above, SNL/CA was included in the 1992 LLNL EIS/EIR. Ten years later, NNSA decided that the continued operation of LLNL and SNL/CA required different levels of environmental analysis based on the proposed plans for each site. Therefore, on February 4, 2002 (67 FR 5089), NNSA's Office of Kirtland Site Operations issued a Notice of Intent announcing the preparation of a Site-wide Environmental Assessment for SNL/CA. An environmental assessment for the continued operation of SNL/CA was completed by NNSA in 2003. As a result, this LLNL SW/SPEIS does not include the operations or activities at SNL/CA, other than in a discussion of cumulative impacts.

With the passage of more than 10 years since the publication of the 1992 LLNL EIS/EIR and because of proposed plans for modification to existing projects or new programs, NNSA determined that it was appropriate to update the information contained in the 1992 document. On April 22, 2002, NNSA began planning for the preparation of a LLNL SW/SPEIS for continued operations of LLNL (Hooper 2002). On June 17, 2002, NNSA published a Notice of Intent

(NOI) in the *Federal Register*, announcing its intent to prepare a new SW/SPEIS to evaluate the environmental effects of the operation of LLNL (67 FR 41224).

This LLNL SW/SPEIS provides NNSA with an assessment of the potential environmental impacts in terms of ongoing and reasonably foreseeable facilities, operations, and activities at LLNL. The impacts addressed in this LLNL SW/SPEIS bound LLNL activities and support functions within the envelope of the No Action Alternative, Proposed Action, and Reduced Operation Alternative (see Chapter 3). For actions beyond the scope of this document, further NEPA reviews will be prepared. In appropriate cases however, future environmental documents would be tiered from this LLNL SW/SPEIS.

1.5 MAJOR DECISIONS

A decision will be announced in a ROD issued by NNSA concerning the continued operations of LLNL based on the assessment of the alternatives described in Chapter 3. The ROD will also announce several major issues that are part of the Proposed Action and consider factors other than environmental issues. These major decisions are addressed in the following paragraphs.

1.5.1 Use of Proposed Materials on the National Ignition Facility

In 1996, the programmatic impacts of conducting DOE/NNSA's Stockpile Stewardship and Management Program at all NNSA sites were evaluated in the SSM PEIS. The SSM PEIS ROD documented the decision to construct and operate the NIF at LLNL. In 1997, the Natural Resources Defense Council (NRDC) and 39 other organizations brought suit against DOE in NRDC v. Peña, Civ. No. 97-936(SS) (D.D.C.), challenging the adequacy of the SSM PEIS, partially on the basis that DOE should have analyzed conducting experiments on the NIF using plutonium, other fissile materials, fissionable materials, and lithium hydride. DOE maintained that the use of these materials were not reasonably foreseeable at that time. In August 1998, the judge in the lawsuit issued a Memorandum Opinion and Order that dismissed the plaintiffs' case. The Memorandum Opinion and Order provided in Paragraph 6 that:

> No later than January 1, 2004, DOE shall (1) determine whether any or all experiments using plutonium, other fissile materials, fissionable materials other than depleted uranium (as discussed in the Supplement Analysis for the Use of Hazardous Materials at the NIF experiments, A.R. doc. VIIA-12), lithium hydride, or a Neutron Multiplying Assembly (NEUMA), such as that described in the document entitled Nuclear Weapons Effects Test Facilitization of the National Ignition Facility (A.R. doc VII.A-4) shall be conducted at the NIF; or (2) prepare a Supplemental SSM PEIS, in accordance with DOE NEPA regulation 10 C.F.R.1021.314, analyzing the reasonably foreseeable environmental impact of such experiments. If DOE undertakes the action described in subpart (2) of this paragraph, DOE shall complete and issue the Supplemental SSM PEIS and the Record of Decision based thereon within eighteen (18) months after issuing a notice of intent to prepare the Supplemental SSM PEIS.

In November 2002, the NNSA Deputy Administrator for Defense Programs approved proposing experiments on the NIF using plutonium, other fissile materials, fissionable materials, and

lithium hydride. NNSA has chosen to use the LLNL SW/SPEIS as the mechanism for complying with the court's instruction to prepare a supplemental SSM PEIS. The inclusion of this supplemental SSM PEIS in the LLNL SW/SPEIS ensures timely analysis of these proposed experiments within the environmental impacts being evaluated for the continued operation of LLNL. In any ROD to be issued, NNSA will address decisions on the use of any or all of these proposed materials in NIF experiments within the context of continuing LLNL operations. During the LLNL SW/SPEIS scoping period, comments were received from members of the public and non-government organizations stating their concerns and objections to NIF operations.

The evaluation of the reasonably foreseeable environmental impacts of performing experiments with these proposed materials is contained in Appendix M, and the results of the analysis are reflected in the comparison of impacts presented in Appendix M, Section M.5. These results show that the primary impacts from use of the proposed materials would be increased low level waste and increased worker exposure to radiation. The projected increase in waste would be approximately 50 percent of the total volume estimated under the No Action Alternative. The increase in worker exposure was conservatively estimated and is within the range normally accepted for radiological work and is below both DOE regulatory limits and those enforced through the LLNL Environmental Safety and Health Manual.

1.5.2 Increased Administrative Limits for Plutonium in the Superblock

Superblock

Superblock is comprised of the Building 332 Plutonium Facility, Building 331 Tritium Facility, and Building 334 Hardened Engineering Test Building.

In the 1992 LLNL EIS/EIR, a primary goal of LLNL was to reduce the plutonium inventory to 200 kilograms through offsite disposition of significant portions of the inventory. This goal was partially achieved by relocating approximately half of the excess material offsite; however, DOE facilities were unable to accept all materials identified to be shipped. In 1999, DOE prepared a supplement analysis that reexamined future program requirements at LLNL and identified the need to modify certain radioactive material limits established in the 1992 LLNL EIS/EIR. The 1999 supplement analysis confirmed the need for an administrative limit of 700 kilograms of plutonium to provide for continued LLNL support of the Stockpile Stewardship Program.

Administrative Limits

Administrative limits are defined as the maximum amount of the referenced material allowed at a facility. The actual inventory for some materials at LLNL for which there is an administrative limit may be classified.

NNSA continues to rely on LLNL to meet its Stockpile Stewardship Program mission objectives. These objectives include campaigns relating to pit manufacturing and certification, advanced radiography, dynamic materials testing, materials shelf life experiments, and enhanced surveillance research. These NNSA-assigned campaigns and programs require continued and increasing use of plutonium. NNSA continues to work on a solution for disposal of plutonium, but no pathway for LLNL to dispose of excess plutonium currently exists, requiring an increase in the plutonium administrative limits. Therefore, NNSA would increase the administrative limit for fuel-grade equivalent plutonium to 1,500 kilograms

from the existing 700 kilograms. The limit for enriched uranium would remain unchanged at 500 kilograms. During the LLNL SW/SPEIS scoping period comments were received from members of the public and nongovernment organizations stating their concerns that NNSA had not reduced the amount of excess plutonium stored at the Superblock, and that the environment and population surrounding LLNL was at considerable risk to accidents or terrorist acts involving the plutonium inventory.

The Superblock plutonium inventory is stored in robust vaults and no accident scenario involving the material in the vaults is considered reasonably foreseeable. Terrorist acts and Superblock security are considered in the LLNL SW/SPEIS. The information on these accidents is provided in classified or official use only documents. The accidents discussed in the LLNL SW/SPEIS bound the environmental impacts associated with the proposed higher plutonium inventory limit.

1.5.3 Conduct Integrated Technology Project in the Plutonium Facility

In the NOI and at the public scoping meetings for the LLNL SW/SPEIS, NNSA identified a proposed project that might be restricted to a classified appendix that would not be publicly available. During the LLNL SW/SPEIS scoping period, comments were received from members of the public and nongovernment organizations stating their concerns and objections that the LLNL SW/SPEIS would include a classified appendix not available for public review. After completing a classification review, it was decided that a classified appendix was not required. Although certain information remains classified, a detailed description of the project's purpose and need, material processing, and the environmental impacts of the project are included in the LLNL SW/SPEIS in Appendix N, Integrated Technology Project (ITP).

Science-Based Stockpile Stewardship and Management Program (SBSSMP) experiments are needed to increase the understanding of the complex physics and behavior of materials in nuclear weapons and ultimately to certify the efficacy of the Nation's aging stockpile. Accurate, theoretical, scientific, and experimental data are required to validate the computer models of the weapon performance. SBSSMP experiments involve the use of both surrogate and actual materials that would be used in the weapon system.

The Advanced Materials Program involves the development and demonstration of the Atomic Vapor Laser Isotope Separation (AVLIS) technology. The ITP is a follow on activity to the Advanced Materials Program to produce material to augment the current inventory of special nuclear materials (e.g. plutonium and enriched uranium) for use in SBSSMP experiments. The ITP would not proceed until the Advanced Materials Program demonstrations are complete. The expected ITP start would be FY2008. The ITP is one of the bases for the increase in the plutonium material-at-risk limit from the current 20 kilograms in any room of the Plutonium Facility to 60 kilograms of fuel-grade-equivalent plutonium in each of two rooms. This material-at-risk increase would enable LLNL to pursue multiple Stockpile Stewardship Program missions simultaneously. Details of the Advanced Materials Program and ITP are presented in Appendix N.

1.5.4 Increased Material-at-Risk Limit for the Plutonium Facility

Material-at-Risk

A material-at-risk limit is defined as the maximum amount of the referenced material that is involved in the process and thus at risk in the event of a postulated accident. Material locked in secure storage is not considered material at risk.

The Proposed Action would increase the plutonium material-at-risk limit from 20 to 60 kilograms of fuel-grade equivalent plutonium in each of two rooms of the Plutonium Facility. This increase is needed to meet future Stockpile Stewardship Programs such as ITP and the casting of plutonium parts. These activities support campaigns for advanced radiography, pit manufacturing, and certification programs. If the material-at-risk is increased, the bounding Plutonium Facility accident consequences to the population surrounding LLNL would increase from an aircraft crash resulting in 5.82×10^{-2} latent cancer fatalities (LCFs) per year under the No Action Alternative to an unfiltered fire involving 60 kilograms fuel-grade equivalent plutonium resulting in 1.68×10^{-1} LCFs per year under the Proposed Action.

1.5.5 Increase of Tritium Facility Material Limits

The Proposed Action would increase the Building 331 Tritium Facility tritium administrative limit from 30 to 35 grams and the material-at-risk at a single workstation from 3.5 to 30 grams. These increases are needed to support future planned Stockpile Stewardship Program activities such as the high-energy density physics target fill and the Test Readiness Program. The activities support the campaign for inertial confinement fusion and high yield and the readiness to resume testing, if directed. Analysis in the LLNL SW/SPEIS shows the increased material-at-risk would result in higher consequences from an aircraft crash into the Tritium Facility. This accident has an annual frequency of 1.53×10^{-6} and would be bounded by other radiological accidents under all alternatives.

1.6 PUBLIC SCOPING PROCESS

Public involvement is an integral part of NEPA and on June 17, 2002, NNSA published a NOI (67 FR 41224) announcing its intent to prepare this LLNL SW/SPEIS. Consistent with NEPA (42 USC §4321, et seq.) and Council on Environmental Quality regulations (40 CFR Parts 1500–1508), NNSA conducted an early and open process to identify and determine the scope of issues to be addressed in the LLNL SW/SPEIS. The NOI invited interested parties to attend public scoping meetings on July 10 and 11, 2002, in Livermore and Tracy, California, respectively. They were encouraged to submit written comments through August 13, 2002. Subsequently, in response to a request from the public, NNSA extended the deadline for submission of written comments to September 16, 2002.

During the LLNL SW/SPEIS scoping process, NNSA received 250 scoping comment documents from members of the public; interested groups; and Federal, state, and local officials. These included transcripts from the public scoping meetings held in Livermore and Tracy. Table 1.6–1 provides a summary of the scoping comment categories and the number of comments in each category. Although a total of 380 unique comments were identified, these comments may have

fallen into more than one category; therefore, the sum of comments in Table 1.6–1 is slightly more than the total of 380 mentioned previously.

The following paragraphs summarize the comments received, grouped by major areas of concern. Each paragraph directs the reader to a section of the LLNL SW/SPEIS that addresses these areas of concern.

TABLE 1.6–1.—*Category Distribution of Scoping Comments*

Category	No. of Comments
Policy	74
Scope and Alternatives	69
Public Involvement	22
Health and Safety/Accidents	77
Air Quality	20
Water Quality	17
Environmental Compliance and Waste Management	71
Project-Specific Comments	79
General Comments	146

Source: Original.

1.6.1 Policy

Comments were received that the LLNL SW/SPEIS should provide information on weapons activities at LLNL; evaluate the effects of reduced budgets on DOE policy for environmental cleanup; evaluate compliance with proposed and existing nuclear weapons treaties such as the Nuclear Non-Proliferation Treaty; and address *California Environmental Quality Act* requirements.

Chapter 1, Section 1.3.1, provides information on the purpose and need for weapons activities at LLNL, and Chapter 2 provides detailed information on the LLNL programs that support the NNSA missions. Chapter 5 presents the impacts of discontinuing current environmental restoration operations; budget information and treaty compliance will be considered in preparing a ROD. This document covers NEPA requirements and does not address the *California Environmental Quality Act* requirements; however, Appendix B discusses *California Environmental Quality Act* information for waste management activities.

1.6.2 Scope and Alternatives

Scoping comments requested the LLNL SW/SPEIS analyze a shutdown of LLNL, conversion of LLNL to an academic laboratory, or conversion of LLNL to an environmental research laboratory. These comments centered on concerns with the LLNL operation of the Plutonium Facility, the NIF, and the ITP. These comments also noted that the LLNL SW/SPEIS should include the activities at SNL/CA in the LLNL SW/SPEIS and address LLNL activities at other sites, i.e., nuclear weapons activities at the Nevada Test Site.

These alternatives were considered as unreasonable; however, the Reduced Operation Alternative represents a significant reduction of Stockpile Stewardship activities at LLNL. SNL/CA is not included in the scope of this LLNL SW/SPEIS. An environmental assessment for

the continued operation of SNL/CA was completed by NNSA in 2003 (DOE/EA-1442). However, SNL/CA impacts are discussed as part of the appropriate cumulative impacts addressed in Chapter 5.

Some comments received stated that the LLNL SW/SPEIS should analyze the hazards associated with biological materials that might be used in the BioSafety Level-3 (BSL-3) Facility, included under the No Action Alternative. A final environmental assessment provided NEPA analysis for the construction and operation of this facility, including the impacts of normal and accident conditions (DOE/EA-1442). A DOE Finding of No Significant Impact dated December 2002 approved construction and operation of the BSL-3 Facility at LLNL (NNSA 2002e). Therefore, this LLNL SW/SPEIS does not provide additional information beyond what is provided for the BSL-3 Facility in the environmental assessment.

Chapter 3 provides a discussion of the alternatives considered as a part of this LLNL SW/SPEIS. Chapter 3, Section 3.5, discusses alternatives considered but eliminated from detailed analyses. Section 1.3 of this chapter discusses the role of LLNL in nuclear weapons research, development, design, and surveillance. Chapter 3, Section 3.2, discusses planned LLNL activities that are included in the No Action Alternative as a consequence of previous NNSA decisions based on previous NEPA analyses. LLNL activities at other sites are addressed in the NEPA documents for those sites.

1.6.3 Public Involvement

Comments also indicated that the LLNL SW/SPEIS should afford state, tribal, and local government entities the opportunity to participate in the DOE NEPA process as cooperating agencies and extend the comment period an additional 30 days to allow the public more time to comment on the scope and alternatives. These comments also requested that the nongovernment organizations and members of the general public be provided the opportunity to have independent technical experts participate in the process of reviewing the analysis during the preparation of the LLNL SW/SPEIS.

NNSA extended the deadline for submission of written comments from August 13 to September 16, 2002 (67 FR 52462). The extension notice specifically indicated the opportunity for government agencies interested in participating in the DOE NEPA process as designated cooperating agencies. No cooperating agencies were identified. There are no plans to provide additional review opportunities for nongovernment organizations or members of the public beyond those required by the NEPA process. The LLNL SW/SPEIS provides information in an unclassified form on the environmental impacts of LLNL operations.

1.6.4 Health and Safety/Accidents

Comments requested that the LLNL SW/SPEIS include the potential impacts of accidents with hazardous and radioactive material, analyze the impacts of accidents at Site 300, evaluate the impacts of a Greenville Fault earthquake, evaluate the effects of a terrorist attack on LLNL, include a discussion of the history of accidental releases to the environment, evaluate the impact of air pollutants on the environment and the public, and evaluate the increased levels of melanoma and birth defects in Livermore, California.

An investigation of the incidence of cancer among LLNL employees did not identify any link between employment at LLNL and increased risk of cancer (Moore et al. 1997). Another study

found that the cancer rates among children and young adults in the city of Livermore do not differ appreciably from elsewhere in Alameda County (California Department of Health Services 1995). Another study found that birth defect rates in Livermore are similar to the overall rates for the state of California (California Department of Health Services 1996). Therefore, an analysis of the rates for melanoma or birth defects in the city of Livermore was not included in this LLNL SW/SPEIS.

Chapter 5, Section 5.5, and Appendix D provide detailed information on accident evaluations for LLNL operations at the Livermore Site and Site 300, including the effects of an earthquake on LLNL facilities. Terrorist or malevolent attacks on LLNL are analyzed in classified or official use only documents. Environmental airborne release impacts are discussed in Chapter 5, Sections 5.2.8 (No Action Alternative), 5.3.8 (Proposed Action), and 5.4.8 (Reduced Operation Alternative); and seismic evaluations are provided in Sections 5.2.6, 5.3.6, and 5.4.6. Additionally, Appendix C, Section C.4, contains additional information on air quality and Appendix H contains additional information on seismicity. Chapter 4, Section 4.17 describes the history, current status, and ongoing planned remediation activities of contaminated soil and groundwater at LLNL.

1.6.5 Air Quality

Comments were received that the LLNL SW/SPEIS should evaluate controlled burning at Site 300, evaluate LLNL compliance with state and Federal air quality standards, list the air pollutants that are emitted from LLNL operations, address the mitigation measures that will be taken to reduce the impact on air quality in the Bay Area, provide current information on the release of radionuclides to the atmosphere, and address any proposed increases in emissions.

Environmental airborne release impacts are discussed in Chapter 5, Sections 5.2.8 (No Action Alternative), 5.3.8 (Proposed Action), and 5.4.8 (Reduced Operation Alternative). Appendix C, Section C.4, has additional information on air quality.

1.6.6 Water Quality

Comments were received that the LLNL SW/SPEIS should provide current and projected water consumption, evaluate LLNL compliance with state and Federal water quality standards, address the groundwater contamination at LLNL and compliance with state and Federal regulations, and discuss the current and projected wastewater treatment activities and compliance with state and Federal regulations.

Environmental water quality impacts are discussed in Chapter 5, Sections 5.2.9 (No Action Alternative), 5.3.9 (Proposed Action), and 5.4.9 (Reduced Operation Alternative). Site contamination is discussed in Sections 5.2.15, 5.3.15, and 5.4.15. Waste treatment is discussed in Sections 5.2.13, 5.3.13, 5.4.13, and Appendix B.

1.6.7 Environmental Compliance and Waste Management

Comments were received that the LLNL SW/SPEIS should address *Resource Conservation and Recovery Act* and *Toxic Substances Control Act* corrective action activities at LLNL, evaluate radionuclide contamination in LLNL soils, address offsite contamination, list all LLNL permits and the responsible organizations, evaluate compliance with state and Federal environmental

regulations, address compliance with the Council on Environmental Quality pollution prevention requirements, address the transportation of waste to the Nevada Test Site, and address the waste minimization activities at LLNL.

Information on compliance with *Resource Conservation and Recovery Act* and *Toxic Substances Control Act* and compliance with Federal and state regulations is provided in Chapter 4, Section 4.17, and Chapter 7, and the impacts analysis for site contamination is discussed in Chapter 5, Sections 5.2.15, 5.3.15, and 5.4.15. Waste management environmental impacts are addressed in Chapter 5, Sections 5.2.13, 5.3.13, 5.4.13, and Appendix B. Environmental impacts of transportation are discussed in Chapter 5, Sections 5.2.11, 5.3.11, and 5.4.11. Transportation accidents are addressed in Chapter 5, Section 5.5. Pollution prevention and waste minimization strategies are discussed in Appendix O.

1.6.8 Project-Specific Comments

National Ignition Facility

During the LLNL SW/SPEIS scoping period, comments were received from members of the public and nongovernment organizations stating their concerns and objections to NIF operations. Comments noted that the LLNL SW/SPEIS should analyze the use of any hazardous and radioactive materials at the NIF and analyze the nonproliferation and treaty compliance impacts of the NIF operations.

Appendix M provides a detailed discussion of the environmental impacts of conducting experiments on the NIF using proposed hazardous and radioactive materials. Nonproliferation and treaty compliance will be addressed as part of the ROD for the LLNL SW/SPEIS.

BioSafety Level 3 Facility

Comments were received that the LLNL SW/SPEIS should analyze the hazards associated with biological materials that might be used in the proposed BSL-3 Facility, analyze the potential for terrorist attacks on the BSL-3 Facility, include the BSL-3 analysis as part of the LLNL SW/SPEIS and not as a separate NEPA document, cover all normal operations and accident conditions at the BSL-3 Facility, and provide data on maximum inventories and transportation of infectious agents.

A final environmental assessment (NNSA 2002a) provides NEPA analysis for the construction and operation of this facility, including the impacts of normal and accident conditions. A DOE Finding of No Significant Impact, dated December 2002 (NNSA 2002e), approved construction and operation of the BSL-3 Facility at LLNL. This LLNL SW/SPEIS does not provide additional information beyond what is provided for the BSL-3 Facility in the environmental assessment. Terrorist or malevolent attacks on LLNL are analyzed in classified or official use only documents referenced in Appendix D.

Classified Project

In the NOI and at the public scoping meetings for the LLNL SW/SPEIS, NNSA presented a project that might be restricted to a classified appendix that would not be publicly available. During the LLNL SW/SPEIS scoping period, comments were received from members of the

public and nongovernment organizations stating their concerns and objections that the LLNL SW/SPEIS would include a classified appendix not available for public review. Comments were received that the LLNL SW/SPEIS should justify the need for the classified project, provide as much information as possible in the unclassified discussions, analyze the environmental impacts of the classified project and its effect on the operations at the Plutonium Facility, and analyze all impacts associated with the project. After completing a classification review, it was decided that a classified appendix was not required. Although certain information remains classified, a detailed description of the project's purpose and need, material processing, and the environmental impacts of the project are included in the LLNL SW/SPEIS in Appendix N.

The name for the classified project discussed at the scoping meetings is the Integrated Technology Project. Appendix N provides a detailed unclassified discussion of the environmental impacts of this project, including the purpose and need. Appendix N also describes how the ITP would be implemented in the Plutonium Facility.

East Avenue Security Upgrade

Comments were received that this project should not be part of the No Action Alternative and that it should be part of the Proposed Action.

The East Avenue Security Upgrade project administratively controls a portion of East Avenue between South Vasco and Greenville roads. A final environmental assessment was issued in September 2002 (DOE 2002h) and a Finding of No Significant Impact approved this security upgrade. This project remains a part of the No Action Alternative and is discussed in Chapter 3; the environmental impacts are addressed in Chapter 5.

1.6.9 General Comments

Comments were received in several other areas such as affected environment, biology, document readability, environmental justice, geology and seismicity, land use, LLNL management, mitigation, socioeconomics, visual resources, emergency response, transportation, and cumulative impacts. Information concerning these comments can be found in Chapter 4, Chapter 5, Appendix F, Appendix G, Appendix H, Appendix I, and Appendix J.

1.7 *FINAL SITE-WIDE ENVIRONMENTAL IMPACT STATEMENT FOR CONTINUED OPERATION OF LAWRENCE LIVERMORE NATIONAL LABORATORY AND SUPPLEMENTAL STOCKPILE STEWARDSHIP AND MANAGEMENT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT* AND RECORD OF DECISION

EPA's Notice of Availability (NOA) for the Draft LLNL SW/SPEIS, published in the *Federal Register*, initiates a 90-day comment period. After the comment period, NNSA will consider the comments and, as appropriate, make changes to the Draft LLNL SW/SPEIS. NNSA will then issue a Final LLNL SW/SPEIS. NNSA will consider the Final LLNL SW/SPEIS, along with other information, in making a decision on the continuing operations of LLNL. No sooner than 30 days after EPA publishes its NOA for the Final LLNL SW/SPEIS, NNSA may issue a ROD, which will announce its decision and explain all factors, including environmental impacts, that NNSA considered in reaching its decision. The ROD would make decisions among the three alternatives.